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1. In the context of machine learning, what is a diagnostic?
- ☐ An application of machine learning to medical applications, with the goal of diagnosing patients' conditions.
 - ☒ A test that you run to gain insight into what is/isn't working with a learning algorithm.
 - ☐ This refers to the process of measuring how well a learning algorithm does on a test set (data that the algorithm was not trained on).
 - ☐ A process by which we quickly try as many different ways to improve an algorithm as possible, so as to see what works.

✓ **Correct**
Yes! A diagnostic is a test that you run to gain insight into what is/isn't working with a learning algorithm, to gain guidance into improving its performance.

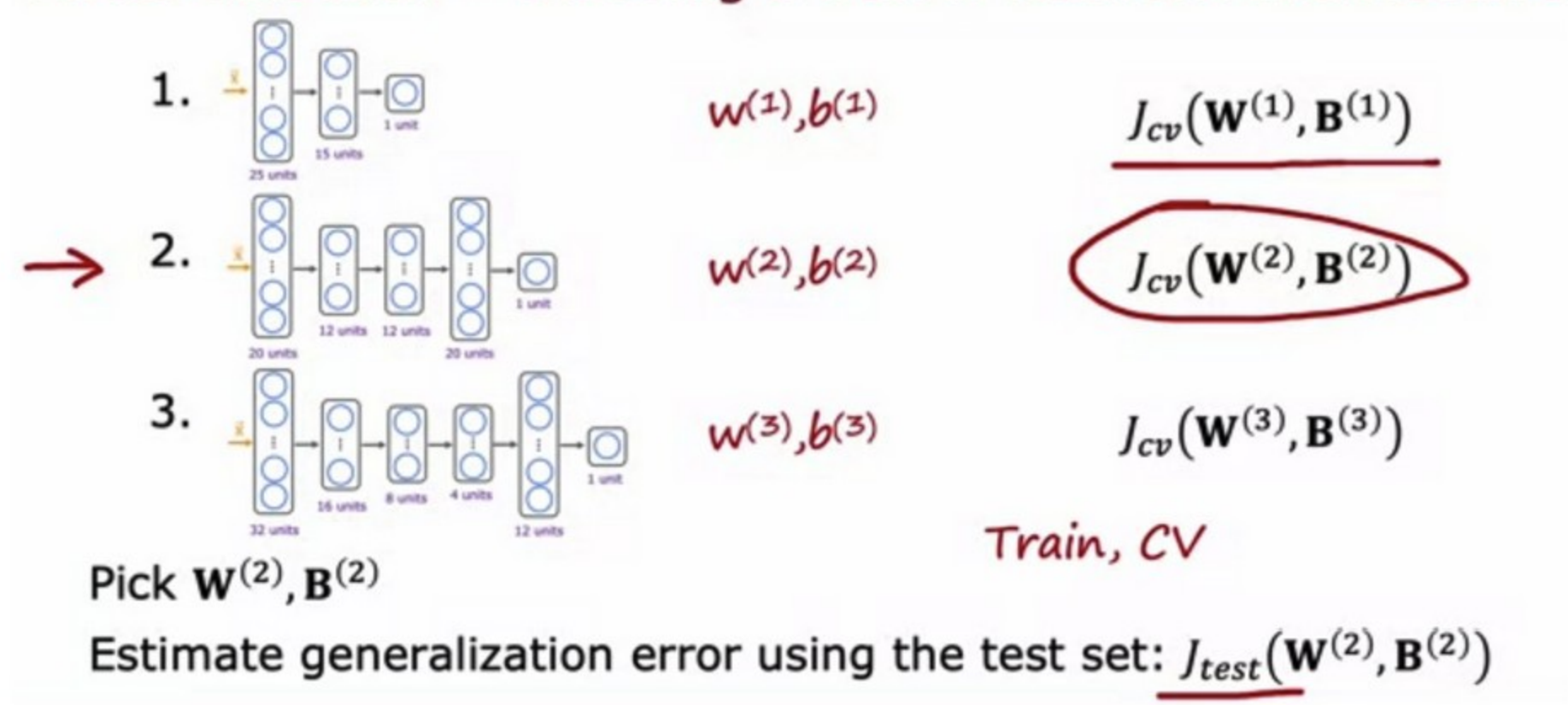
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2. True/False? It is always true that the better an algorithm does on the training set, the better it will do on generalizing to new data.
- ☐ True
 - ☒ False

✓ **Correct**
Actually, if a model overfits the training set, it may not generalize well to new data.

Model selection – choosing a neural network architecture

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3. For a classification task; suppose you train three different models using three different neural network architectures. Which data do you use to evaluate the three models in order to choose the best one?
- ☐ The test set
 - ☐ All the data -- training, cross validation and test sets put together.
 - ☒ The cross validation set
 - ☐ The training set

✓ **Correct**
Correct. Use the cross validation set to calculate the cross validation error on all three models in order to compare which of the three models is best.